



World Leader in Capacitive Proximity Sensing



Azoteq Announces the IQS550-A000 Capacitive Track-pad and Touch Screen Controller with Extended Proximity Range

Azoteq announces the release to market of the IQS550-A000 Capacitive Track-pad and Touch Screen Controller. The IQS550-A000 is Azoteq's latest addition to the ProxSense® family of capacitive proximity and touch controllers.

The IQS550-A000 offers high-resolution touch and hover to track up to five fingers. The extended proximity detection allows the IQS550-A000 to operate in a low power mode, but to wake up instantly to detect touch when proximity is detected.

The IQS550-A000 Capacitive Track-pad Controller is the first in a family of products that will be implemented on the flexible IQS550 platform. The IQS550-A000 uses advanced analog and digital circuitry to achieve unparalleled proximity and touch performance.

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To enable next generation capacitive user interfaces and intelligent switch applications for users to interact naturally with products through capacitive proximity and touch

How to design capacitive touch systems for robustness and manufacturability

The user interface of personal electronics has become critical to the success of products. Capacitive touch sensing has become the user interface technology of choice.

Designers face challenges like electromagnetic susceptibility, parasitic capacitance, enclosure effects, variety of overlay materials and demands on low power consumption.

Electrode tuning simplifies the design and improves signal to noise ratio (SNR) and reliability.

A touch controller with auto tuning maximizes sensitivity, greatly reducing the conventional constraints on PCB layout, limits to overlay thicknesses & materials and negating the need for calibration during manufacture.

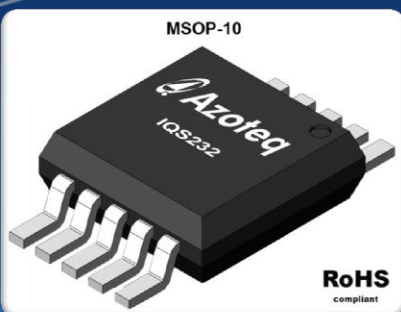
More in depth detail can be found on Azoteq's website under the Design tab in Application Notes. The Application Note number is AZD061 and can be located [here](#).



External Factors that influence Sensitivity

Some things that you must be mindful of when designing for robustness and manufacturability.

Parasitic Capacitance
External Noise
Overlay Thickness and Type
Presence of Air Gaps



The advantages of automatic tuning

- Compensation for parasitic capacitances
- Higher signal-to-noise (SNR)
- Large degree of freedom in PCB layout and materials due to high SNR
- Adjustable sensitivity
- Calibration free manufacturing
- Higher EMI immunity
- Lower EMI radiation
- Proximity detection from the same touch electrode

The IQS550EV03 Evaluation Kit

Azoteq's IQS550EV03 Evaluation Kit demonstrates the IQS550's ease of use and versatility of track-pad and button design.

The Evaluation Kit (EV-Kit) is manufactured in two parts, consisting of a touchpad module, and a module demonstrating a wheel and slider configuration. Each board is interfaced to any personal computer with the Azoteq Configuration Tool (CT120/210/220) or DS100 Data Streamer, and the IQS550EV03 Graphical User Interface (GUI). The purpose of the IQS550EV03 EV-Kit is to facilitate application and development engineers in evaluating the IQS550 proximity and touch sensor, in multichannel applications.

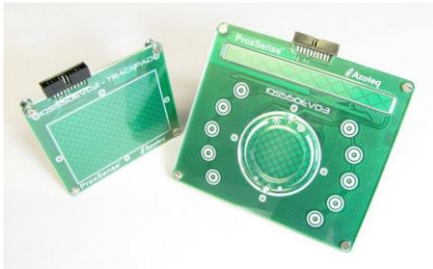


Figure 1: The touch-pad and wheel/slider modules

The IQS550 Controller Module is located on the bottom layer of each EV-Kit board. The controller module measures 20 mm x 14 mm and demonstrates the minimal external components required to operate the IQS550 IC.

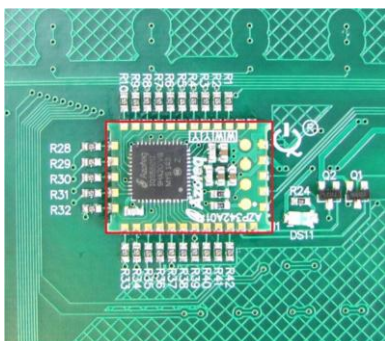


Figure 2: Bottom view of the IQS550 Wheel & Slider EV-Kit board

The Touch-Pad demo board incorporates a 15 x 10 diamond grid with 150 touch channels as well as an extra self-capacitive proximity channel interface with the IQS550, to provide high resolution multi-touch tracking and proximity detection. The touchpad is simply interfaced to a personal computer running the IQS550 Demo GUI software, by means of a CT2xx or DS100.

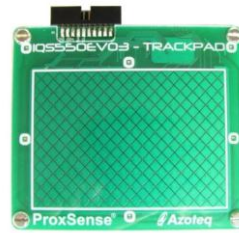


Figure 3: Track-Pad Demo Board



Figure 4: Wheel & Slider Demo Board

The Wheel and Slider board demonstrates the versatility and flexibility of the IQS550 by combining a slider, a touchpad wheel and 10 touch keys, all interfaced to the same IQS550 Controller. Proximity detection is indicated by the blue LED backlighting illumination, and Touch detection by the Red LED lighting around the touch wheel.

The wheel & slider board is simply interfaced to a personal computer running the IQS550 Demo GUI software, by means of a CT2xx or DS100.

The IQS550EV03 Evaluation Kit enables designers to explore all the capabilities of the IQS550-A000. The IQS550EV03 is available from Mouser for \$29.90 [here](#).

The full User Guide for the IQS550EV03 is located on Azoteq's website under the Design tab in Evaluation Kits [here](#).

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The high sensitivity enables the IQS550-A000 to work reliably through thick overlays, and even through membrane switch overlays. The device can operate from 1.65 to 3.6 V and achieves power consumption as low as 15 microampere while still sensing proximity. The IQS550-A000 features an I2C interface for convenient control from a host MCU.

“The IQS550 platform represents a major breakthrough in flexibility for Azoteq. Azoteq will offer the IQS550-A000 Capacitive Track-pad Controller as a first configuration, but the same platform will enable other configurations to be offered to the market shortly,” said Kobus Marneweck, Azoteq’s VP of Marketing.

The IQS550-A000 Capacitive Track-pad Controller is Azoteq’s first capacitive touch controller capable of interfacing with Track-pads and Touch screens as large as 7 inches. In the next few months, Azoteq will introduce smaller versions of the IQS550 for smaller Track-pads or applications that do not require the high resolution of the IQ550.

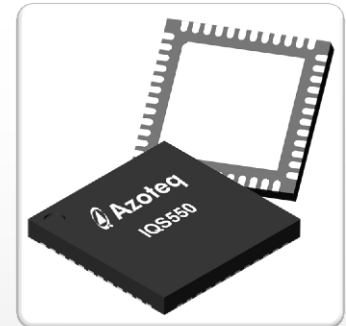
Applications:

- Track-pads
- Track-pad keyboards
- Consumer electronics
- Remote controls
- White goods and appliances
- Office equipment
- Touch screens

Pricing and availability

The IQS550-A000 will be priced at \$1.61 in 1K quantities. Samples and production volumes are available now from Mouser Electronics

(<http://www.mouser.com/azoteq>). More information on the IQS550-A000 can be obtained at <http://www.azoteq.com/iqs550>.



Features

- Proximity, touch and snap on each channel
- Multi-touch and multi-hover support
- Resolution of 4984 x 2304
- 100 Hz report rate
- I2C interface
- ATI: automatic tuning for optimum sensitivity
- Supply voltage: 1.65V to 3.6V
- Active low-power operation (< 15 uA)
- Event mode or streaming mode operation
- Dedicated proximity channel for long-range proximity sensing
- Internal voltage regulator and reference capacitor
- On-chip noise detection and suppression

Happy Holidays from us to you!

Azoteq has release a wide variety of new ICs in 2012 and even more planned to be released in 2013 to enhance your capacitive proximity and touch needs!

And with the holidays here and the New Year approaching, everyone here at Azoteq wishes that you have a **safe and joyful holiday!**



We are looking forward to helping you out in 2013!



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